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NOTES ON SAMIA COLUMBIA, *S. I. Smith.*

See Frontispiece, Fig. 37.

BY G. J. BOWLES, QUEBEC.

This beautiful moth was discovered by Professor S. I. Smith, at Norway, Maine, and described by him in the Proceedings of the Boston Society of Natural History, Vol. IX., March 1865. It is nearly allied to the well known *Samia Cecropia*, but differs therefrom in being slightly smaller, and in the colouration and markings, as well as in the form of the cocoon and appearance of the larva. It may, therefore, be regarded as a well established species. I have been so fortunate as to obtain a specimen at Quebec, and can therefore add this moth to our list of Canadian Bombycidae.

The species is evidently rare in this vicinity. I have met with it only three times, and have not heard of its having been taken by any other Quebec collector. In August, 1864, I captured a full grown larva of this moth, crawling along a fence, in search of some place in which to make its cocoon. It closely resembled a *Cecropia* caterpillar in size and general appearance. Thinking it, therefore, to be a larva of that species, I did not take notes at the time; though on a close examination I could not quite reconcile the colour and arrangement of the tubercles with the description of *S. Cecropia* given by Morris. The principal difference (as far as I can remember), was in the number of red warts with which the larva was ornamented, *S. Columbia* possessing more than the other species. As Professor Smith has never seen a specimen, our knowledge of the early history of the moth must remain defective, until some happy bug-hunter discovers the caterpillar, and gives us a detailed account of its beauties. I may add that *S. Cecropia* has not yet been taken at Quebec, though it is found at Lotbiniere, about forty miles west of the city. The larva above mentioned duly spun its cocoon, which was at first of a whitish colour, but in a few days gradually turned to dark brown, and then was exactly similar to the cocoons I afterwards found. The moth died in the chrysalis state, owing, perhaps, to the presence of parasites.

Two years afterwards, I found another cocoon attached to a twig of thorn (*Crataegus*), but it was full of large parasites, all dead in the pupa. In the fall of 1867, Mr. Couper informed me that he had seen a Saturnian larva spinning up on a gate-post just outside the city, and on examining the place, I discovered a cocoon, which, in the following May, produced the moth, a female, *Samia Columbia*, from which the accompanying drawing was made.

The food-plants of the species are stated by Prof. Smith to be *Nemophantes Canadensis* and *Rhodora Canadensis*; and perhaps *Kalmia angustifolia*, the maple and the larch. From the situations in which I found the larva and cocoons—on dry and cultivated ground—I think it may also feed on other plants, as none of those mentioned, except the maple, were within accessible distance. *Rhodora Canadensis*, its favorite food in Maine, grows abundantly in an excellent hunting-ground for entomologists—the “Gomin Swamp,” a large mossy tract of land about two miles from Quebec. I made several visits to this locality last Spring, and searched the *Rhodora* carefully for cocoons, but did not find any. Perhaps some Western collector may be more fortunate with this plant in his own neighbourhood. The Rev. C. J. S. Bethune states that it is common in rear of Toronto.

The rarity of the moth is no doubt partially due to the fact, that the species is attacked by several parasites. Prof. Smith mentions that out of more than twenty cocoons, he succeeded in obtaining only three perfect insects, nearly all the rest having been destroyed by ichneumons and other enemies. Two species of these have been described in Prof. Smith's paper, by Dr. Packard, as new, under the names of *Cryptus samiae* and *Cryptus Smithii*. It is likely that the larvæ are equally subject to these attacks in Canada, as one (perhaps two) of the three cocoons I obtained, failed to produce the moth from this cause.

Prof. Smith has kindly sent me photographs of the moths, cocoon and chrysalis described by him, so that all doubt is removed as to the identity of my specimen with his. I add his descriptions, to make these notes complete:—

“Male. Antennæ black, and broadly pectinated. Palpi dark maroon brown. Thorax with a white band before; upper side dark maroon, with a short grey band behind; beneath black; the legs also black, slightly tinged with brownish towards the extremities. Abdomen annulated with alternate black and dirty white.

"Above, *Primaries* with a greyish-white band near the base, extending from the inner nearly to the costal border, and enclosing a reddish-brown patch at the base. The middle area of the wing is dark brown, tinged with reddish towards the centre, and contains a triangular white discal spot, bordered on the side toward the base with black, and on the other sides with greyish-brown. There is a narrow white transverse band, wider toward the inner border, between the middle and outer areas. A sinuous black line, on a clay-coloured ground, crosses the posterior border. Near the apex there is a round black spot, containing a bluish-white crescent, with its horns toward the outer border; between this and another small oblong black spot at the apex, there is a white line in the form of a W, with the upper side toward the outer border. A space along the costal border, extending from this zigzag line almost to the middle area, is bluish white, growing darker and more indistinct as it approaches the transverse band. A short band between the middle area and the greyish outer border, extending from the inner border a third of the way across the wing, is dark greyish-brown, becoming lighter as it leaves the inner border. *Secondaries* with a small dirty white spot on the shoulder, and the anterior border just edged with the same. A white transverse band similar to the one on the primaries. The space between this band and the base of the wing is dark brown, with the discal spot large and white; the outer border is margined with clay-colour, bounded on the inside by an arcuate black line. Just inside of this line, there is a band of oblong black spots on a greyish ground; the space between this band of spots and the transverse band is occupied by a wide greyish-brown band.

"Beneath, the markings of the upper side are repeated; but all the reddish tints are wanting, so as to leave the ground colour of the wings black, intermingled with whitish scales. The discal spots are bordered with black.

"Female. The antennæ are less broadly pectinated than in the male, and all the colours less intense. Discal spots of the primaries almost obsolete; being only short lines bordered with black, and parallel to the transverse band. Discal spots of the secondaries much smaller than in the male, and more rounded.

"Expanse of wings, ♂ 4 in.; ♀ 4.9 in.

"The cocoon is double; the outer coat being an oblong oval, pointed at the upper end; dark ashy brown, with little patches of silvery silk, and with an irregular, knobby surface. The inner cocoon is of a regular oval

at both ends, and closely woven upon the outer coat, except at the upper end, where the point of the outer cocoon extends above the inner one. Length of cocoon, 1.80 to 2.15 in.; diameter .6 to .8 in. They are attached longitudinally to twigs. The imagines appear at the end of May.

"This species differs materially in colour from *S. Cecropia*. The male has the antennæ, palpi, thorax and legs much darker. The short grey (or whitish) band on the hind part of the thorax is not found in *S. Cecropia*. The discal spots of all the wings are white instead of dull red with a white centre. The transverse bands of both pairs of wings are white, instead of dull red bordered internally with white. It wants the broad white band so conspicuous on the anterior border of the secondaries of *S. Cecropia*, and also the reddish tints and markings near the apices of the primaries.

"The female differs from that of *S. Cecropia* in having the palpi, legs and abdominal rings dark brown, or almost black, instead of dull red. The discal spots of the primaries are linear, obscure and parallel to the transverse band, instead of broad, conspicuous and parallel to the costal border. The discal spots of the secondaries are small, and almost round, instead of large and somewhat triangular. As in the male, it has the white on the hind part of the thorax, and wants the white on the anterior border of the secondaries, and also the red on the apices of the primaries, on the discal spots, and on the transverse bands.

"The cocoon differs greatly from that of *S. Cecropia*. It is much smaller and of a more regular form. It is dark brown, approaching black in some places, with silvery spots; instead of uniformly light brown. The inner and outer cocoons are so closely woven together, except at the very top, as to be separated with difficulty; while in *S. Cecropia* they are separated by quite a space filled with loose silk."

Since the publication of Dr. Packard's "Synopsis of the Bombycidae of the United States" in 1864, the genus *Samia* (Hubner) in America has been restricted by Mr. Grote to a Chinese silkmoth, the *Samia Cynthia* of Linnæus, which has been introduced into the United States, and has become acclimatized there. Mr. Grote has erected the new genus *Platysamia* (Broad *Samia*) for *Cecropia*, *Columbia* and *Californica* (the *Saturnia Euryale* of Boisduval, found in California). By this revision, therefore, the species under consideration will in future bear the name of *Platysamia Columbia*, S. I. Smith.

MICRO-LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KY.

Continued from Page 185.

LEUCANTHIZA?

L. Saundersella. *N. sp.*

Palpi white: face opalescent or silvery, according to the light: antennæ maroon-brown, silvery towards the apex: tuft maroon-brown: thorax of a shining metallic lustre, in some lights opalescent: a streak of the same hue crosses the extreme base of the wings, is continued for a short distance along the dorsal margin, and thence curves obliquely across the wing again to the costal margin, enclosing a maroon-brown patch upon the costa, and being narrowly margined behind with dark maroon, beyond which the wing is bright golden to the apex. There is a short oblique somewhat curved brilliant metallic streak upon the costa, about the middle, pointing forwards, and nearly reaching the fold, with a maroon-brown dark margin extending from the costa before it to the costa behind it; and a second smaller straight costal streak, of the same hue, similarly dark margined, placed at the beginning of the costal ciliæ. Another straight streak of the same hue extends from the middle of the dorsal margin to the beginning of the dorsal ciliæ, with a maroon-brown margin extending around it, and continued as a narrow band entirely around the apex of the wing, at the base of the ciliæ, to the second costal streak; ciliæ silvery gray. *Alar ex.* $\frac{1}{4}$ inch. A single specimen taken in Kentucky in August. Larva and food plant unknown.

I have named this pretty species in honour of Mr. Wm. Saunders, of the CANADIAN ENTOMOLOGIST.

The markings of the head, thorax and basal half of the wings, must be very similar to those of *Leucanthiza amphicarpeæfoliella*, Clem., *Proc. Acad. Nat. Sci. Phila.*, 1859, but those of the dorsal and apical portions seem to be very different. Those of the anterior portion are very similar also to those of *Lithocolletis ornatella*, ante, which, as before stated, seems* to obliterate the differences between these two genera, except as to the neururation of the wings, as to which, the species of *Lithocolletis* differ somewhat among themselves. I, therefore, doubt whether *Leucanthiza* can be maintained as a distinct genus. Having but a single specimen, I have not examined its neururation. But from its evidently strong resemblance to the only other described species (*L. amphicarpeæfoliella*), I place it for the nonce in that genus.

PHYLLOCNISTIS.

The species of this pretty genus of snow-white moths may be distinguished from the white species of *Lithocolletis* by the smooth head and the usually smaller size. Otherwise, they resemble each other strongly. The resemblance between *L. Clemensella* and *P. vitifoliella*, and between *P. liriodendronella* and *L. caryæ-albella*, is very great. The larvæ also, notwithstanding that they are apodal, resemble the young cylindrical larvæ of *Lithocolletis* in general appearance.

The mine is a long narrow winding line like the track of a small snail, and it pupates in a *nidus* at the end of the mine on the edge of the leaf.

1. *L. vitifoliella*. *N. sp.*

Glistening snowy white, the forewings tinged with golden towards the apex. Behind the middle of the wing is a narrow oblique blackish costal streak, and behind it again another small straight one, opposite to which is a small straight dorsal one. At the tip is a circular black spot, and before it on the costa are two straight black streaks. At the tip of the wing are two blackish diverging lines in the ciliæ, with another also in the ciliæ beneath the apical spot, and nearly adjoining the blackish hinder marginal line. Ciliæ silvery. Hind wings and ciliæ silvery white. *Alar. ex.* less than $\frac{1}{4}$ inch. The larva mines the upper surface of Wild Grape leaves from May to October. Kentucky. Wisconsin.

Since the above was written, I have seen the remarks of Dr. Clemens, in *Proc. Ent. Soc. Phila.*, vol. 1, p. 135, under *Lyonetia*, in which he describes a mine in leaves of grape vines, in which the parenchyma is entirely eaten out, and the frass centrally deposited, in both respects differing from the mine of *P. vitegenella*, which resembles a snail's track. Dr. Clemens did not succeed in rearing the imago, but thought it was distinct from *P. vitegenella*, though closely resembling it. On examining my herbarium specimens of the mined leaves, I have no doubt that Dr. Clemens had the mines of this species before him. In Kentucky it is as abundant as *P. vitegenella*, all through the summer, in all of its stages, and can be found in winter abundantly hybernating under the loose bark of Hickory trees, and in similar situations in company with *P. vitegenella*, and occasionally *P. ampelopsifoliella*. It seems to bear nearly the same relation to *P. vitegenella* that *Lithocolletis Clemensella* does to *L. lucidicostella*.

2. *P. vitegenella*, Clem. *Proc. Acad. Nat. Sci. Phila.*, 1859, p. 327.

Differs from *P. vitifoliella* only in the following respects: The antennæ are blackish above; there is a pale semi-oval blackish spot on the dorsal margin of the wings, not far from the base; the second costal streak

unites with the opposite dorsal one, forming a narrow fascia. *Alar ex.* less than $\frac{1}{4}$ inch. Very abundant in its mine, on the upper surface of grape leaves, as larva and pupa, from May to November. Imago from June to November, and hibernating under bark. Wisconsin, Pennsylvania and Kentucky.

3. *P. ampelopsiella*. *N. sp.*

Glittering snowy white wings, slightly golden towards the apex. Antennæ, except near the base, *suffused with pale fuscous*. A pale black spot on the dorsal margin of the wings, not far from the base. *An indistinct blackish median longitudinal line on the thorax. A very distinct oblique black basal streak above the fold, beginning at the base of the costa, and parallel to the fold.* Behind the middle of the costa is an oblique costal black streak, which is produced along the costa. Behind this is a black line curving from the costa to the inner margin. At the tip is a circular black spot, and before it, on the costa, are two straight black streaks, *the posterior of which is the longest, passing before the apical spot nearly to the inner margin.* At the tip are two black diverging lines in the ciliæ, and another also in the ciliæ beneath the apical black spot, and nearly joining the black hinder marginal line. *Abdomen and legs tinged with pale golden.* Ciliae silvery. *Alar. ex.* less than $\frac{1}{4}$ inch. Kentucky. Common.

The points in which it differs from *P. vitegenella* are indicated by the italics, and its dark markings are more distinct.

The larva mines the under surface of leaves of the Virginia Creeper (*Ampelopsis quinquefolia*) through the summer, and until the fall of the leaves. Usually, at some point of the mine, it is spread out, assuming the appearance of a white blotch, and thus differs from the mines of the other three species. The parenchyma is not all eaten out, and the mine is not transparent, thus resembling that of *P. vitegenella* and *P. liriodendronella*, and differing from that of *P. vitifoliella*.

4. *P. liriodendronella*, Clem. *Proc. Ent. Soc. Phila.*, v. 2, p. 13.

This is the only other described American species. It mines the leaves of the Tulip Poplar (*Liriodendron tulipifera*), but it is not, as Dr. Clemens supposed, confined to the upper side of the small terminal leaves. It mines both surfaces, without regard to the size of the leaf. And there is a mine, which I believe to be the same, upon both surfaces of the leaves of *Magnolia glauca*, and upon the upper surface of those of *M. grandiflora*, and probably upon all of our native *Magnoliaceæ*, though I have never observed it on the Japanese *M. purpurea*.

It is a little larger than either of the preceding species having an *alar ex.* of fully $\frac{1}{4}$ in. It is glistening snowy-white, with a pale golden basal streak from the base of the costa above the fold, and which unites at a somewhat acute angle with the first costal streak. The wing is more golden than the preceding species, and the streaks are rather wider apart.

It is not very common in Kentucky, although its food plant is abundant; and it is rather difficult to rear in confinement, probably because the leaves dry so rapidly.

There is another species, the imago of which is unknown. The larva mines the leaves of an unknown weed, growing in small tufts like a plantain, the leaves of which are deeply lobate, occurring abundantly all through the Gulf states, especially in damp woods. The larva is very abundant, and its anal segment very long. Mine, like that of *P. vitifoliella*.

TISCHERIA.

This genus differs from *Lithocolletis* in the much plainer colours of the imago, and much shorter antennae, which in the males are ciliated. The maxillary palpi also are developed, though small and scarcely perceptible; and in this respect, as well as in the position of the imago in repose—with the head elevated, and the apex of the wings touching the surface upon which the insect rests—it makes an approach to *Gracillaria*.

The larvae are very cleanly, always depositing the frass outside of the mine; and the mines are always upon the upper side of the leaves, frequently at the edge, and resembling the mines of some *Gracillariæ*. It pupates in the mine.

1. *Tischeria matifoliella*, Clem. *Proc. Acad. Nat. Sci. Phila.*, 1860, p. 208.

A plain bronzy-brown insect, having an *alar ex.* of a little more than $\frac{1}{4}$ inch. Dr. Clemens found it in apple leaves, and I have also bred it from leaves of different species of Haw (*Cratægus*), Sweet Scented Crab (*Pyrus coronaria*), Blackberry (*Rubus villosus*), and Raspberry (*R. occidentalis*). And it probably mines other species of *Rosaceæ*.

Dr. Clemens also very briefly characterizes the following species, in the *Proc. Acad. Nat. Sci. Phila.*, 1859, p. 326, viz.:—

T. solidagonifoliella, mining leaves of Solidago, which I have never met with.

T. Zelleriella and *T. citrinipenella*, both of which feed within Oak leaves.

T. quercilella, *Proc. Ent. Soc. Phila.*, v. 2, p. 13, which also mines Oak leaves.

I am not certain that I have seen either of these Oak-feeding species. I have, however, several Oak-feeding species differing slightly from these, and from each other. Dr. Clemens seems to have doubted whether the species described by him were really distinct; and mine, and those of Dr. Clemens resemble each other so closely, that only an attentive study of the mines and insects in all their stages, and with many specimens, can give anything like certainty as to the distinctness of species. I therefore postpone any further descriptions of species.

CEMIOSTOMA.

C. albella, ante, mines the leaves of the Cottonwood (*Populus monilifera*), and may, therefore, be an American species—if it is not the European *C. susinella*.

I have also cocoons of a species which mines the leaves of Yellow Willow (*Salix alba*), and Weeping Willow (*S. Babylonica*)—both imported species. The cocoons do not differ from those of *C. albella*, and possibly it may be that species. The mines are very filthy, and the larva hides in the frass, its filthy habits contrasting strongly with the singular purity and beauty of the resuscitated imago.

ON THE LARVA OF HYPERETIS ALIENARIA, *Herr. Sch.*

BY W. SAUNDERS, LONDON, ONT.

The larva of this beautiful geometric moth is dark brown, and feeds on beech. The specimens, from which the subjoined description was made, were taken on the 10th of September, by beating the branches of some beech trees over an umbrella.

Length one inch, body cylindrical.

Head medium sized, bilobed, dark brown, with two bluish-white lines in front; mandibles paler.

Body above, dark brown, with a row of dull white dots on each side, one or two on each segment, most prominent from fifth to eighth segments inclusive, less distinct towards each extremity. On the posterior part of ninth segment were two rather prominent roundish black tubercles, with a few whitish streaks in front at their base. Terminal segment of a bluish tint, flattened and spreading.

The under surface was rather paler than the upper, with a central row of yellowish-white dots from fifth to tenth segments inclusive; from the second to the fourth, the colour was bluish-green, and on twelfth segment was a patch of yellow; feet bluish-green, with a streak of brown, prolegs brown on the outside, but bluish-green within.

Two of these larvæ entered the chrysalis state on the 19th of September, having formed a rude case in which to secrete themselves, by binding two leaves together with threads of silk. One of them produced the imago on the 18th, the other on the 21st of May following.

NOTES ON MEGACHILE BREVIS, Say.

BY E. B. REED, LONDON, ONT.

While inspecting, during the past summer, the fruit orchards of a friend residing in this neighbourhood, my attention was attracted by the peculiar appearance of the leaves of a young plum tree. At the first glance, I



FIG. 33.

thought it might be affected by *aphides*, but, on closer examination, I found unmistakable evidence of the work of some leaf-cutting bee, in the circular holes in many of the leaves, and on opening one of the coils of leaves, of which there were four or five, I discovered the curious chambers

of the bee, each containing a half-grown grub, comfortably ensconced, with its modicum of food. I took some coils home, but only succeeded in rearing two perfect insects, which Mr. C. V. Riley, of St. Louis, Mo., kindly identified for me, as being *Megachile brevis*, Say, and which are represented in fig. 38.

My chief object in this communication is to call attention to the peculiarity of the cells being constructed on the leaves of the tree, and not, as is usually the case, in some post or fence-rail, or in a chamber excavated in the ground. I am not aware that this has been noticed before. Each coil contained probably four or five chambers. The three I took had five, and I left others on the tree. The leaf, or outside wrapper, appeared to be fastened with some kind of cement, while the interior portion was contrived and planned in the manner usual to this little upholsterer, and which has been so admirably explained and related by various Entomological writers. The genus *Megachile* consists usually of solitary bees, and as far as I can gather, they construct but one nest. But in this case, it would appear that more than one insect had attacked the tree. I saw no bees in the immediate vicinity, nor could I detect traces of their work on other trees. The tree stood quite remote from any rose bush, or in fact from any tree having the usual form of serrated leaves, which leaf-cutting bees generally select. The coils appeared to be all finished, and apparently of about the same date of construction. In those I examined, there was not much difference in the age of the larvæ.

INSECTS OF THE NORTHERN PARTS OF BRITISH AMERICA.

COMPILED BY THE EDITOR.

From Kirby's Fauna Boreali-Americana: Insecta.

(Continued from page 192.)

Genus *DICHELONYCHA* Harris.—Labrum transverse, lanceolate, scarcely emarginate. Mandibles short, trigonal, incurved, toothless, acute: molar space transverse, furrowed. Maxillæ minute, linear, bidentate, with short teeth. Labium subquadrangular, not distinct from the mentum. Palpi maxillary four-jointed; first joint very minute; second longer than the third, obconical; third triangular; last joint as long as the three others together, very large, subsecuriform. Palpi labial three-jointed; joints short, subfiliform; last truncated. Antennæ nine-jointed; scape obconi-

cal, incrassated; pedicel subspherical; third and fourth joints subfiliform; fifth obconical; sixth subturbinate; the three last forming a short subovate knob. Body narrow, subcylindrical. Head subquadrangular; nose transverse, separated by an indistinct obtusangular line, anteriorly reflexed; rhinarium transverse marked with a transverse series of rather large punctures; eyes prominent; canthus entering: prothorax hexagonal, the sides being obtusangular: scutellum rounded at the vertex, dilated at the base: elytra linear, rounded at the apex, obsoletely ridged, wrinkled; epipleura vertical, narrow: legs rather slender; hind legs long; cubit tridentate; tarsi filiform; claws equal, all bifid at the apex: podex subtriangular.

[134.] This genus evidently belongs to the same family with *Macroclactylus*, from which it is distinguished by having its maxillæ armed only with two teeth, the last joint of its palpi of a different shape, and its labium approaching to a square form: whereas in the latter genus the maxillæ are more conspicuous and armed with three teeth, the last joint of the palpi is subovate, and the labium is oblong and channelled.

The species of this genus, as far as at present known, appear to be confined to the more northern parts of the new world; I have seen none south of the province of Massachusetts, from whence I have received specimens both from Dr. Harris and Mr. Drake. Type of the genus *Melolontha linearis* Herbst.

182. *DICHELONYCHA BACKII* Kirby.—Plate ii., fig. 6.—Length of body $4\frac{1}{2}$ lines. Several specimens taken in Lat. 54° .

Body black, glossy, hairy, especially underneath, with white decumbent hairs; above thickly and coarsely punctured. Nose much reflexed, margin entire; stalk of the antennæ chestnut; elytra silky, green, more or less bronzed.

VARIETY B. Antennæ rufous. Tarsi pale chestnut. [Taken on north shore of Lake Superior by Agassiz's Expedition.]

183. *DICHELONYCHA VIRESCENS* Kirby.—Length of body $4\frac{3}{4}$ — 5 lines. Taken in Canada by Dr. Bigsby, in Nova Scotia by Dr. Mac Culloch, in Massachusetts by Dr. Harris, and in Pennsylvania by Dr. Horsfield. Dr. Bigsby found it common on the different species of *Salix*.

[135.] Body piceous, thickly covered underneath, except the disk of the breast and abdomen, with decumbent snowy hairs, minutely punctured, punctures most numerous on the upper side. Head nearly black, covered with glittering decumbent hairs; nose very obtuse and almost truncate, less reflexed than in *D. Backii*, reflexed part obscurely rufous; rhinarium, underside of the head, and mouth with its organs, rufous;

antennae reddish-yellow : prothorax nearly black with the sides a little paler, with a longitudinal discoidal rather obsolete channel and an impression on each side ; sprinkled with short glittering decumbent hairs : scutellum rufous, thickly covered at the base with whitish decumbent hairs : elytra reddish-yellow tinted with green, sprinkled with short decumbent whitish hairs, the lateral punctures are almost arranged in dense rows : abdomen rufous ; podex thickly covered with snowy hairs : legs reddish-yellow ; tarsi darker ; posterior tibiae black, reddish at the base ; posterior tarsi piceous.

VARIETY B. Head and prothorax rufopiceous ; legs rufous.

C. Head and prothorax rufous mottled with dusky ; elytra with a green spot at the shoulders and tips ; posterior legs entirely rufous ; trunk rufous.

[This species is in all probability synonymous with *D. longatula* Schon., the var. C belonging to *D. subvittata* Lec. Both of these species are common in Canada ; we have generally taken them upon various kinds of Oaks.]

184. DICHELONYCHA TESTACEA *Kirby*.—Length of body $4\frac{1}{3}$ lines. Taken by Dr. Bigsby in Canada.

Very similar to Variety C of the preceding species ; but the body, with the exception of the eyes which are black, is entirely of one colour, rufotestaceous, the head, prothorax, and tarsi being rather darker than the rest ; the eyes are larger and more prominent ; the head and prothorax, especially the latter, are more thickly and minutely punctured ; and in this there is no dorsal channel : its margins, especially the lateral, are more hairy, the elytra exhibit no humeral or apical green spot ; and they are very slightly tinted with that colour. [Two females found at Eagle Harbour, Lake Superior, by Dr. Le Conte. Included in the List of Canadian Coleoptera.]

[136.] 185. CETONIA FULGIDA *Fabr.*—Length of body $7\frac{1}{2}$ lines. Taken in Canada, at Lake St. Clair, by Dr. Bigsby.

Body depressed, of a beautiful glossy green. Head black underneath, above grossly punctured ; eyes reddish-brown ; antennae brown-black ; nose anteriorly subemarginate and a little reflexed ; prothorax with a triple posterior sinus, grossly but not thickly punctured, sides luteous : scutellum an isosceles triangle, impunctured : elytra, in some lights, luteous, in others with a shade of green ; at the base grossly but not thickly punctured, the remainder of the elytrum is acuducted like net work ; disk longitudinally depressed : podex dusky, luteous at the apex,

with four triangular, white, basilar spots; abdomen underneath with a double series of triangular white spots on each side, the outer ones elongated: sides of the breast hairy; mesosternum suborbicular, hairy; legs luteous; tarsi and base of the cubits, brown-black. [This beautiful insect, now included in the genus *Euryomia* Burm., is taken occasionally, but not commonly, in Ontario.]

186. *TRICHIUS BIGSBI* Kirby.—Length of body 7 lines. Taken in Canada, near Lake St. Clair, by Dr. Bigsby.

[137.] This species exhibits the habit and general aspect of *T. fasciatus*, but it is larger and less hairy. Body obovate, black, covered more or less with tawny longish hairs. Head quadrangular; nose reflexed, emarginate; antennae and palpi luteous, black at the tip; prothorax trapezoidal, narrowest anteriorly, sides rounded or subobtusangular, posteriorly with an obsolete sinus near each angle; scutellum short, rounded at the apex; elytra without hairs, covered as it were with a bloom; luteous with a black margin and nine black spots—viz. one large one at the shoulders, seven in the disk arranged transversely 2, 3, 2, and one larger than the rest on the apical tumour; the humeral and apical spots are glossy: three tawny-yellow mealy spots, the intermediate one straight and longitudinal, and the lateral ones sinuated and oblique, mark the podex: the tibiae and tarsi of the four anterior legs are deep ferruginous; cubit bidentate, [Synonymous with *GNORIMUS MACULOSUS* Knoch. Taken, but rarely, in Canada.]

187. *TRICHIUS ASSIMILIS* Kirby.—Length of body $4\frac{1}{4}$ —5 lines. Taken in Lat. 65° ; in Nova Scotia by Capt. Hall; and in Massachusetts by Dr. Harris.

[138.] Body obovate, black, covered more or less with long yellowish hairs. Head punctured; nose reflexed, emarginate; stalk of the antennae testaceous, scape and knob black; palpi dusky: prothorax punctured, less hairy in the disk, not channelled: elytra black, very short, depressed next the suture with an intermediate ridge; at the base is a large pale-yellow spot common to both elytra, from which run a pair of narrow, white, mealy bands, which nearly reach the external margin, and a white mealy stripe adjoining the suture also runs from the same spot to the apex of the elytrum: the podex is covered with long yellowish hairs, so thick on the sides as almost to conceal the oblong white mealy spot common to the subgenus; legs black.

N. B.—In the specimen taken in the Expedition, the white mealy stripe next the suture appears to have been rubbed off and is replaced

by a continuation of the pale spot. [Previously described as *T. affinis* Gory. Taken in Canada.]

188. *TRICHIUS ROTUNDICOLLIS* Kirby.—Length of body $5\frac{1}{2}$ lines. Taken in Nova Scotia by Capt. Hall.

Body obovate, black ; covered, particularly underneath, with longish pale hairs. Head very thickly punctured ; nose reflexed, emarginate ; stalk of the antennae, excluding the scape, testaceous : prothorax suborbicular, with the segment of a circle taken out next the head ; very thickly punctured, channelled, sprinkled with short yellowish hairs ; at the side of each of the four angles is a mealy-white spot : the elytra next the lateral margin have two transverse mealy-white streaks or bands, which are continued towards the suture by a broader, naked, ferruginous, obscure band ; just below the scutellum, on each elytrum, is another mealy stripe, and parallel with the suture is an obscure, naked, ferruginous one : podex hairy with the ordinary mealy pale spots very conspicuous ; it is sculptured with transverse undulated lines : cubits robust with two stout teeth : a mealy spot marks the base of the posterior legs. [Synonymous with *T. piger* Fabr. : taken commonly in Ontario.]

189. *TRICHIUS VIRIDANS* Kirby.—Length of body $4\frac{1}{2}$ lines. A single specimen taken in Canada by Dr. Bigsby.

In the markings of its elytra this species agrees precisely with that last described, but the upper side of the body, especially the head and prothorax, is green ; the latter is of a different shape and less thickly punctured ; and the cubit and its teeth are less robust : the podex also is more hairy. These can scarcely, all of them, be mere sexual distinctions.

It seems intermediate between *T. rotundicollis* and *T. viridulus*. [A variety of *T. affinis* Gory.]

[140.] 190. *TRICHIUS RUGOSUS* Kirby.—Length of body $10\frac{1}{2}$ —13 lines. Taken in Nova Scotia by Dr. Mac Culloch and Capt. Hall.

Body rather glossy, dark pitch-colour, naked above with a few scattered hairs on the underside and on the legs. Head above plane, thickly covered with impressions and punctures that anastomose and run into each other, in some specimens leaving here and there some elevated, levigated, narrow spaces : nose anteriorly transverse, reflexed : prothorax with a longitudinal posteriorly abbreviated channel ; sides obtusangular ; surface covered, less thickly in the disk, with large, and often confluent, punctures : scutellum an isosceles triangle, channelled, with a few scattered large punctures on each side : elytra indistinctly furrowed, confluent and irregularly wrinkled, wrinkles marked with shallow indistinct punctures,

interstices elevated: cubit acutely tridentate: podex transversely irregularly acuducted. [This is a description of the *female* of *Osmoderma scabra* Dej., a species quite common in Ontario.]

191. TRICHIUS FOVEATUS *Kirby*.—Length of body $11\frac{1}{2}$ lines. Taken in Nova Scotia by Capt. Hall.

Near the preceding species, but perfectly distinct. Body nearly naked, somewhat glossy, of a dark pitch-colour. Nose and front between the eyes with a very deep and large impression, the bed of which is acuducted in circles with a minute puncture in the centre of each; the rest of the head is confluent punctured; above the bed of the antennae the front rises into a rather lofty levigated prominence: the prothorax is shaped like that of *G. rugosus*, but is rather less obtusangular, the channel is deeper, with its sides more elevated, and there are one or two slight impressions between it and the margin; the punctures on the disk are rather more numerous: the elytra are paler than the rest of the body and a little bronzed, the wrinkles of the surface are more vermiform than in the species just named, without any punctures, and the appearance of furrows is less distinct: the podex is distinctly punctured and scarcely acuducted; and the cubit is sinuated rather than dentated, the three prominences being extremely obtuse. [A description of the *male* of *Osmoderma scabra* Dej.]

[141.] 192. PLATYCERUS PICEUS *Web*.—Length of body 6 lines. A single specimen taken in the journey from New York to Cumberland-house.

[142.] Body dark piceous, rather glossy, thickly punctured. Nose very retuse, or rather with a large sinus: mandibles shorter than the head, acute, armed on their inner side with a stout tooth with the segment of a circle taken out of it; antennae pale chestnut: prothorax with the lateral margin obtusangular, subcrenate, and reflexed; disk longitudinally impunctured, and obsoletely channelled: scutellum channelled, impunctured: elytra furrowed: cubit serrulate and denticulate, two sharp teeth longer than the rest at the apex; tarsi chestnut. This is the smallest species of the stag-beetle tribe. [Placed, with a mark of interrogation, as a synonym of *Platycerus depressus* Lec. This specific name is preoccupied by McLeay's *Ceruchus piceus*. *P. Depressus* is taken in Canada.]

193. PASSALUS INTERRUPTUS *Linn*.—Length of body $1\frac{1}{4}$ — $1\frac{1}{2}$ inch. Many taken in the journey from New York to Cumberland-house.

Body black or piceous, underneath sometimes rufo-piceous, impunctured, glossy. Head with a crooked horn between the eyes pointing

towards the mouth, and a triangular elevation adjoining each eye on the inner side ; labrum with a deep sinus ; mandibles with three teeth at the extremity, and one in the middle of the upper side ; knob of the antennae consisting of three hairy joints, the outer one thicker than the others and curved : prothorax channelled, impressed on each side near the base ; under a powerful lens several scattered very minute punctures may be discovered on its surface ; the ora, or undersides of the prothorax, are likewise punctured, and soft with tawny hairs : elytra furrowed ; furrows punctured : cubit many-toothed ; intermediate tibiae densely bearded, on the outside, with tawny hairs.

The bent or nodding horn on the head of the species here described has generally been taken for a sexual character ; but I am inclined to regard this as a mistaken notion. Specimens thus circumstanced, as far as I have been able to ascertain, have hitherto been found only in North America ; while those with a tuberculated head are found in various parts of South America, in the East and West Indies : and I have one in my cabinet from New Holland. Eleven specimens of the former were collected in the Expedition, varying in size, and not a single one of the latter. [Generally known by the Fabrician name of *P. cornutus*. Taken frequently in the southern and western parts of Ontario.]

MEETING OF THE LONDON BRANCH.

The regular monthly meeting of the London branch of the Entomological Society of Ontario, was held on Friday evening, the 15th inst., at the residence of Mr. Saunders—the President, Mr. C. Chapman, in the chair.

After the usual routine business was disposed of, the recent death of one of the active members of the Society was referred to : that of Mr. B. Billings, of Ottawa. His loss was deeply regretted, and the following resolution of condolence and sympathy unanimously passed :—

Resolved.—That we have heard, with deep regret and sorrow, of the loss of one of our active members by death : the late B. Billings, Esq., of Ottawa, a man who, by his generous bearing towards his fellow-labourers, and his own active work in Entomological science, has won for him the highest esteem ; and, while we sincerely feel the loss which our Society has

sustained in his removal, we tender our warmest sympathies to his bereaved family in their severe affliction.

Resolved.—That a copy of the above Resolution be forwarded to the widow of the deceased, and that it be also published in the CANADIAN ENTOMOLOGIST.

Mr. W. Saunders exhibited the following interesting insects :—

1st. Five specimens of unnamed Coleoptera belonging to the family *Cerambycidae*, from the collection of R. V. Rogers, Esq., Kingston, all of which were new to the members present, among them a *Leptura*, a *Clytus*, and an *Elaphidion*.

2nd. A dipterous insect, from the collection of Mr. G. J. Bowles, Quebec, probably *Trypeta Canadensis*, Loew, which he has found injuring the fruit of both the red and white currant. Mr. Bowles says: "I got a number of the infested currants when the larvæ were about full grown, but owing to their being kept too dry, I did not succeed in raising many specimens. They enter the currants while the latter are green, and a little round black scar in the side, shows where they made their way in. The grub is white, and about .30 in. long when full grown. The currants ripen prematurely, and, generally, begin to decay, and drop to the ground. I think the larva goes into the ground to pupate. Only one made its cocoon, out of those I gathered, and it was made loose in the box. I have seen them only in one garden, where I met with them several years ago, and again last summer, but there they were very plentiful. I should say that one currant out of every five or six had a grub in it."

3rd. An ichneumon, parasitic on *Tortrix rosaceana*, which Mr. Saunders has found to infest it very commonly. One point worthy of notice in relation to it is its size. The single larva of the fly almost fills the body of the caterpillar, and yet the latter goes on actively feeding, and grows to maturity, without manifesting any symptoms of inconvenience. When about ready to enter the chrysalis state, the occupant eats its way out of the body of its victim, which shrinks up and dies, and the parasite spins a cocoon differing in character from that of the *Tortrix*, but containing a pupa nearly as large. The species has not yet been determined.

4th. Another ichneumon, a parasite also on a little green leaf-roller, undetermined, which has been found attacking the gooseberry in great numbers, and is very destructive. Unlike that previously mentioned, this fly is quite small, and several specimens are produced from each of the larvæ of the *Tortrix*. The cocoon of the parasite was also shown. It is small, oval, and of a dark brown colour.

5th. A handsome, undetermined *Tortrix*, with brown fore-wings, powdered with metallic scales, and which Mr. Saunders reports to be quite common in a locality near London.

6th. A small beetle, a *Sitona*, closely allied to, if not identical, with *panacea*; found in large numbers in a bottle of powdered caraway seeds. Specimens of the dead larvæ were found along with the perfect insect, but they were too much dried up and discoloured to admit of description. In the pupal condition, the insect occupies a small oval chamber in the powder, from which the beetle escapes at maturity.

ACKNOWLEDGMENTS.

COLLECTION OF COLEOPTERA.—We beg to acknowledge, with many thanks, the receipt of a box of Coleoptera from the Rev. N. D. St. Cyr, Seminaire de Nicolet, P. Q.; we trust that our esteemed correspondent will accept our apologies for having so long delayed to notice them. Our time is so much engrossed with the various and multiplied duties that have of late devolved upon us, that we find it impossible to be punctual with our correspondence, or indeed to maintain it at all as we should like. We trust, however, that our present labours will be diminished before long, and that then we may hope once more to obtain the good graces of our friends, which, we fear, we must by this time have lost in many cases by our apparent neglect. M. St. Cyr, in his gift to the Society's Cabinet, has included 247 specimens of Coleoptera, belonging to 71 different species—many of them rare and interesting. They reached us in very good order indeed, with only the almost inevitable loss of a few antennæ. As our correspondent writes in French, we may perhaps be pardoned for departing from our rule, and quoting his very kind and flattering expressions regarding our Society and this publication:—"Je m'empresse de saisir cette occasion pour nous feliciter du succes tres remarquable que vous avez obtenu: la Societe est florissante, et le CANADIAN ENTOMOLOGIST, toujours attendu avec impatience, nous arrive toujours rempli d'articles extremement interessants sur cette belle science. Je ne crains pas de le dire votre Journal peut rivaliser avec honneur, avec les publications du meme genre faites aux Etats-Unis. La forme, le fond, tout y'est irreprochable."

VESPA CRABRO.—We are very much obliged indeed to our correspondent, Mr. James Angus, of West Farms, N. Y., for some specimens (5 males, 5 females, and 6 neuters), of this most formidable-looking hornet. They form a valued addition to our cabinet.

EXCHANGES, &c.

LEPIDOPTERA, &c.—I have a collection of Birds' Eggs, Lepidoptera (including some from Florida) and Coleoptera, duplicates of which I should like to exchange, giving preference to the two first named.—JOSEPH E. CHASE, Lock Box 46, Holyoke, Mass.

An American Entomologist, who has made a speciality of Lepidoptera, would like to correspond with collectors in any part of the world.—Address H. K. Morrison, care of E. K. Butler, 68, Pearl-street, Boston, Mass.

ADVERTISEMENTS.

COLLECTING TOUR IN LABRADOR.—The undersigned intends to leave next spring, *in the first vessel from Quebec*, on a collecting tour in LABRADOR. Insects of all orders will be collected; and as many species will be, no doubt, unique, undetermined or new to science, those who are anxious to obtain specimens of LEPIDOPTERA and COLEOPTERA will please communicate with me as early as possible. Terms in accordance with number and specialties.—WM. COUPER, Montreal.

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AGENTS FOR THE ENTOMOLOGIST.

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UNITED STATES.—The American Naturalist's Book Agency, Salem, Mass.; J. Y. Green, Newport, Vt.; W. V. Andrews, Room 17, No. 137 Broadway, New York.

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